

MEASURING CHANGE IN SEX-ROLE SELF PERCEPTIONS

An abstract of a Dissertation by
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The Problem. The problem of this study was to determine the changes in participants' sex-role self perceptions following their participation in the interpersonal and male/female component of the human relations training model in Drake University's Teacher Education Program. The research was designed to investigate the effectiveness of the program in changing student's self perceptions toward androgyny.

Procedure. Experimental and control samples were identified and administered the Bem Sex-Role Inventory in a pretest, posttest, and posttest-2 sequence. The experimental group experienced the training model. The control sample did not. Raw scores were converted to t-scores for each subject. A mean difference change score was computed for both samples representing the difference between pretest and posttest-1 and between pretest and posttest-2. One-tailed t-tests for independent samples were calculated for a Difference Between Mean Change Scores and were considered significant at the .05 level of probability ($p < .05$).

Findings. The study found no significant difference as measured by the B.S.R.I. between the mean change in sex-role self perceptions of the group participating in the human relations component and the mean change in sex-role self perceptions of the group not participating. This was also true for males and females when considered separately in both situations.

Conclusions. Possible conclusions to be drawn from the study are: 1) A two week model may not have an impact sufficient to offset years of socialization. 2) Changes may occur at developmental levels different from androgyny and thus may not be measurable by the B.S.R.I.; 3) Enough students may have been androgynous to begin with so that the stability of their personalities contributed to the results of "no difference".

Recommendations. Continued experimentation with methodologies for enhancing androgynous potential is

needed. Further research is needed to determine methods of evaluation appropriate to different developmental levels so that change can be measured more accurately. Continued research is needed specifically on ways to affect change in the sex-role perceptions of late adolescence e.g., college students.

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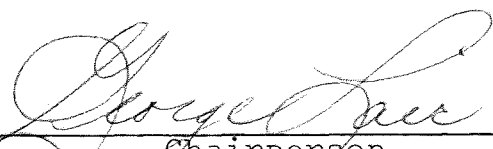
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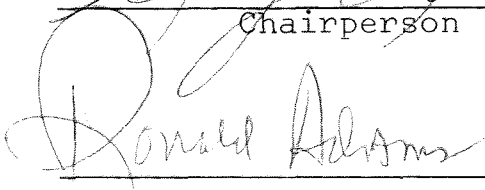
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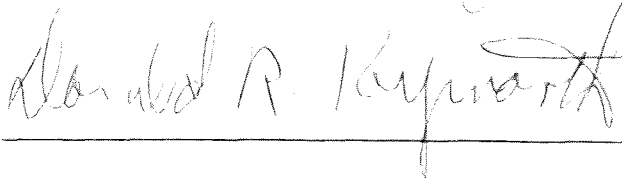
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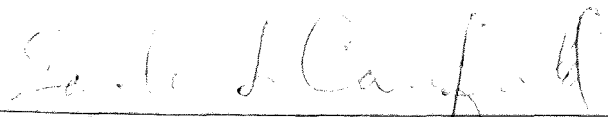

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Dean of the School of Graduate Studies

MEASURING CHANGE IN SEX-ROLE
SELF PERCEPTIONS

A Dissertation
Presented to
The School of Graduate Studies
Drake University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
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Chapter 1

INTRODUCTION

Rationale

Title IX, of the federal law prohibiting sex discrimination states:

No person...shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance...¹

Since its inception in 1972, Title IX has grown from being simply a controversial issue to becoming an emerging reality in terms of implementation, i.e. program development. The Women's Liberation Movement of the seventies rallied behind Title IX, supporting its principles both prior to and pursuant to its enactment.

Consciousness-raising groups flourished across the United States as men and women sought, through association with same sex persons, personal development and social change. Initially, accusations by women identified men as oppressors and our society as one malingned with sexism, detrimentally affecting only women. Iowa Women's Caucus stated, "Sexism, in essence, limits

¹Peer, the Project on Equal Rights: Summary of the Regulation for Title IX Education Amendments of 1972 (Washington, D.C. Peer Project, 1974), p.1.

the intellectual, psychological, and physical growth of females while encouraging males to acquire a wide variety of skills and achievements."¹ The underlying assumptions have been 1) males have exclusive rights to success --achievement and money, 2) these aspirations are worthy, and 3) women do not have equal access to them. Following the women's objections to a "sexist society" and "male chauvinism," some men began responding by reassessing their postures and calling for, in Sawyer's words, "men to free themselves of the sex-role stereotypes that limit their ability to be human."² A Men's Liberation Movement emerged and began demanding freedom to be expressive--to avoid preceding women to their graves. Sidney Jourard stated:

If health, full-functioning, happiness and creativity are valued goals for mankind, then ...(we)...must seek ways of redefining the male role, to help it become less restrictive and repressive, more expressive of the "complete" man and more conducive to life.³

During the last decade, a revolutionary genre of literature has emerged from the concerns of women and men, stirring awareness and unleashing curiosities for research in the areas of masculinity and femininity.

¹What Is Sexism? A Primer For School Board Members and Administrators, A Pamphlet of the Iowa Women's Caucus Research and Education Center, Des Moines, Iowa, p. 3.

²Joseph H. Pleck and Jack Sawyer, eds., Men and Masculinity (New Jersey: Prentice-Hall, Inc., 1974), p. 170.

³Sidney M. Jourard, "Some Lethal Aspects of the Male Role," Men and Masculinity, Pleck and Sawyer, p. 28.

Perhaps the most significant literature emanating from the women's and men's movements is the exploration of sex differences, the identification of sex-role and sex-role stereotypes, and a call for alternatives to current social practices. From research to recommendations, the field is abundant.

Local program implementation rarely makes the leap from theory into practice without intermediaries--planned programs, evaluation and local support. Local support in Iowa came in December, 1976, when the State Board of The Iowa Department of Public Instruction passed a regulation requiring teachers to participate in a human relations training program in order to be eligible for recertification. In responding to Title IX and its implications for equity education, the State Board approved guidelines in May of 1977 for that training which included provision for a male/female, non-sexist component.¹ Drake University's existing human relations training program had been consistent with the ideology of the guidelines for three years prior to their approval. As the College of Education prepared the outline of its model for state department approval, it attempted to go a step farther by introducing the concept of transcending sex-roles toward androgyny. An attempt was made to develop

¹Based on statements made by Tom Anderson, Equity Education Consultant for the Iowa State Department of Public Instruction, in a personal interview, Des Moines, Iowa, July 16, 1979.

a methodology which would not only offset the negative affects of sexism for both males and females, but which would also provide a positive direction for personal growth.¹ Thus, a model for enhancing androgyny emerged.

An emerging view considers the androgynous personality as a healthier model in comparison to the more traditional, sex-typed personalities, i.e., masculine and feminine. Pierce and Sanfacon define the androgynous person as an "integrated person", as one who "has developed both male and female qualities, harmonizing them rather than treating them as irreconcilable opposites to be suppressed or overcome."² Traditionally, male qualities are ones described as initiating, active, analytical, and logical while female qualities are ones described as passive, nurturing, expressive and dependent.³ Bem defines the androgynous person as possessing both masculine and feminine psychological characteristics. She also suggests this posture is healthier for both males and

¹Based on statements made by Dr. Ray Hock, facilitator for and the author of the human relations training program at Drake University. Also based on the personal observation and work experience of this study's author as the co-facilitator for the HRT model, 1976-1979.

²Carol Pierce and Janice Sanfacon, "Man/Woman Dynamics: Some Typical Communication Patterson," from original 1974 manuscript. (See summary in Alice G. Sargent, ed., Beyond Sex Roles [St. Paul: West Pub. Co., 1977].)

³Sandra L. Bem, "The Measurement of Psychological Androgyny," Journal of Consulting and Clinical Psychology, XXXXII, No. 2 (1974), 156.

females.¹

The androgynous personality was seen as desirable and parallel to the concept of mature, integrated persons. As a result, a curriculum model for the teacher education program was designed in the College of Education at Drake University to help students discover their own androgynous potential in an attempt to facilitate the development of androgynous self perceptions.

As with the development of any curriculum, any program, a concern and need for evaluation became apparent. The following question was posed: To what extent does the curriculum model move participant's self perceptions toward an androgynous perception?

Problem

The research is designed to investigate the extent to which the interpersonal and male/female components of the human relations training model in Drake University's Teacher Education Program is effective in changing students' self perceptions toward androgyny.

The purpose of this study is to determine what changes, if any, take place in participants' sex-role self perception following their involvement in the interpersonal/male-female segment of the human relations training

¹Sandra L. Bem, "Sex Role Adaptability: One Consequence of Psychological Androgyny," Journal of Consulting and Clinical Psychology, XXXI, No. 4 (1975), 634-35.

component.

Hypothesis

After review of the related literature, the following question emerged: What change, if any, might occur in the sex-role self perceptions of Drake students following their participation in the specified curricular model? It was anticipated that participating males and females would begin individually to discover the benefits of acknowledging both their masculine and feminine traits and would, therefore, begin to view themselves as being both masculine and feminine as opposed to being just masculine or just feminine. The following hypothesis was made: Students' self perceptions of their sex-roles as measured by the Bem Sex-Role Inventory will, following participation in the specified curricular model, shift toward an androgynous self perceptions.

DEFINITIONS

Androgyny. (1) The term is taken from the Greek word, andro, meaning male and gyne, meaning female and connotes the "blending of behaviors."¹ (2) Bem defines androgyny as the equal complimentary endorsement of both masculinity and femininity within a single individual...a

¹Sandra L. Bem, "Bem Sex-Role Inventory (BSRI)," in The 1977 Annual Handbook for Group Facilitators. (City: Publisher, 1977), p. 83.

person "both instrumental and expressive, both agentic and communal depending upon the situational appropriateness."¹

(3) "An androgynous person would thus represent the very best of what masculinity and femininity have each come to represent."² (4) Androgyny is the embodiment of "The integrated person who has developed both masculine and feminine qualities."³

BSRI. The Bem Sex-Role Inventory is an instrument measuring the psychological qualities of masculinity and femininity. It "treats masculinity and femininity as two independent dimensions" rather than "bipolar ends of a single continuum...thereby making it possible to characterize a person as masculine, feminine, or 'androgynous'".⁴

Human Relations Training component. The component is a curricular model addressing interpersonal interaction, male/female issues, and multi-cultural dimensions as outlined in the Human Relations Application to the Iowa

¹Keynote Address ("Beyond Androgyny: Some Presumptuous Prescriptions for a Liberated Sexual Identity") by Sandra L. Bem for APA-NIWH Conference on the Research Needs of Women, Madison, Wisconsin, May 31, 1975. (Original mimeographed copy.)

²Ibid., p. 4.

³Pierce and Sanfacon, p.1.

⁴Bem, "The Measurement of Psychological Androgyny," p. 155.

Department of Public Instruction.¹

Interpersonnal/Male-Female segment. This segment makes up two-thirds of the Human Relations Training component providing interpersonal interaction and concentration on male/female issues. The segment's duration is two weeks, five days a week, three hours a day in the afternoons.

Sexism. Sexism is discrimination or bias because of sex that is directed toward either men or women.

Sex-role or Sex-role standard. A sex-role is "...the constellation of qualities an individual understands to characterize males and females in his/her culture."² "A person's belief about the culturally appropriate response for his/her sex is called sex-role standard."³

Sex-role identity. (1) "A sex-role identity is

¹Drake University, "An Application for Approval of a Program to Comply with the Human Relations Requirement for Teacher Education and Certification" (Des Moines, Iowa: Iowa State Department of Public Instruction, December 21, 1977). (Mimeographed.) Hereafter referred to as Drake's Human Relations Training Application.

²Jeanne Humphrey Block, "Conceptions of Sex Role: Some Cross-Cultural and Longitudinal Perspectives," Beyond Sex Role Stereotypes, eds. Alexandra G. Kaplan and Joan Bean (Boston: Little, Brown and Co., 1976), p. 64.

³Jerome Kagan, The Growth of the Child (New York: W.W. Norton and Co., 1978), p. 119.

either masculine or feminine, depending upon one's gender."¹

(2) "The earning of a sense of self in which there is a recognition of gender secure enough to permit the individual to manifest [the] human qualities [of both masculinity and femininity]."²

Sex-role endorsement. A sex-role endorsement is the self reported sex-role self perception as measured by the BSRI: highly masculine, highly feminine, androgynous, undifferentiated.

Sex-typed. Bem describes the sex-typed person specifically as a female with a feminine score on the BSRI as significantly higher than her masculine score or a male with a masculine score significantly higher than his feminine score.³ Bem further describes the sex-typed person as, "...someone who has internalize society's sex-typed standards of desirable behavior for men and women."⁴

Traditional role. The traditional role implies the traditional sex-role as a culturally imposed definition of masculinity or femininity as perceived by an individual or

¹Bem, "Beyond Androgyny," p. 1.

²Block, p. 64.

³Bem, "Beyond Androgyny," p. 5.

⁴Sandra L. Bem, "The Measurement of Psychological Androgyny," Journal of Consulting and Clinical Psychology. XXXXII, No. 2 (1974), p. 155.

society, the behavioral result of sex-role standard
vis-à-vis sex-typing.

Chapter 2

REVIEW OF LITERATURE

Introduction

Learning the sex-appropriate behaviors in accordance with one's gender is an important part of human development. How a person develops a sex-role, the qualities generally characteristic of males and females within a given culture, can be understood in the theoretical constructs of psychosexual and/or psychosocial development. This review of literature will consider those theoretical constructs as clustering in three categories: 1) psychoanalytic theory as per Freud, Jung and Erickson, 2) social learning theory as defined by Kagan, and 3) cognitive developmental theory as set forth by Kohlberg. Though there are other constructs combining some of each of the above, this review will be limited to tracing the evolution of psychosexual/psychosocial development in terms of these three major categories.

With these constructs as a base, this review will then explore the theoretical background which holds that sex-roles are learned and/or acquired, thus lending support to the contention that new ones can be learned or substituted. Further consideration will be given to the notion that

learning or acquiring sex-roles in the direction of androgyny is worthy of examination.

Theoretical Constructs of Psychosexual/Psychosocial Development

The development of one's psychosexual/psychosocial orientation which has become known as one's sex-role is explained in gender specific and sexual terms by Sigmund Freud and others who hold the psychoanalytic view. Freud's model for sex-role development postulates that a mature, healthy person evolves from a person's progression through the conflict stage (the Oedipus period extending from ages 3-7) where a boy's 'unconscious' fights to win over his mother while a girl's 'unconscious' struggles to gain the attention of her father. The unconscious has a predominately sexual nature. "With successful repression and resolution of the conflict, a relatively healthy personality develops."¹ According to Freud, a boy must resolve his guilt feelings stemming from his sexual interest in his mother and overcome resulting fantasies of his own castration as punishment. Girls must resolve their "genital injury" resulting from "penis envy" to overcome feelings of inferiority.² The male genitals are symbols of power. Boys feel guilty about initiating thoughts while girls feel guilty about not having

¹Robert A. Harper, Psychoanalysis and Psychotherapy (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1959), p. 15.

²Ibid., p. 15.

a male genital structure.¹ The developmental process is somewhat different for boys than for girls. Freud proposed that girls have weaker super-egos because they do not experience the stringent conflict boys experience. Girls develop their identity from pleasing their mothers. Boys develop their identity by "defensive identification with their father to avoid [the above mentioned] castration."²

Carl Jung, a disciple of Freud who was later rebuked by his master for departing from the classical theory, offers a theoretical process which differentiates less between men and women in the developmental process. Using different terminology, Jung refers to the male unconscious as the anima (the woman within the male) and to the female unconscious as the animus (the man within the female). However, the effects of the anima and the animus on the male and female seem more parallel. The anima and the animus are considered to have equally positive and negative effects upon males and females. The anima and animus are both good and bad. A man's anima is shaped by his mother; a woman's animus is shaped by her father. In Jung's view, the feminine anima within the man offers expressive motivations to balance out his analytical nature. The masculine animus offers women

¹Ibid.

²Mary L. Franken, "Sex Role Expectations in Children's Vocational Aspirations and Perceptions of Occupations" (Doctoral Dissertation, Drake University, 1976), p. 17.

initiating and analytical motivations to balance out her basic expressive and nurturing nature.¹ Jung assumes inherent differences in men and in women and suggests their balance of masculinity and femininity is achieved through the maturation of the unconscious. In other words, we are born different (males primarily masculine and females primarily feminine), and we can mature to a balanced state.

The psychoanalytic theory postulated by both Freud and Jung considers the influence of the parent of the opposite gender as having a major effect upon the sex-role development of males and females in the early years. Both consider masculinity and femininity as polar opposites in conflict with one another.

Erik Erickson's view of personality development includes the unconscious as well as conscious factors as having an effect upon sex-role development. The critical factor, for Erickson, is the development of ego and non-ego. The ego is concept of self and non-ego is the concept of the environment. "Of initial importance in the development of the ego in the individual is the infant's relationship with the mother." The development of trust of self and trust of the environment is critical.² Thus Erickson's

¹Carl G. Jung, and others, eds., Man and his Symbols (New York: Doubleday and Co., Inc., 1964), pp. 177-195.

²James Hansen, Richard Stevic, and Richard Warner, Jr., eds., Counseling Theory and Practice (Boston: Allyn and Bacon, Inc., 1977), p. 53.

view tends to broaden the narrow, psychosexual approach of the Freudians by including a psychosocial, or environmental dimension. While the parental influence of the mother is included, it is not the single most important factor. Erickson postulates the inclusion of the environment in the factors affecting sex-role development.

There are different opinions about whether Erickson fits into the psychoanalytic mold. Some consider Freud the classic psychoanalytic and Erickson as having psychoanalytic leanings. Others place Jung and Erickson in a new category, and refer to them as "ego-analysts."¹ Regardless, the move away from strictly parental influence, as the single most important factor in sex-role development, toward a broader view including the effects of society is apparent.

Moving even farther into the arena which considers sex-role development as more psychosocial than psychosexual is a second theory, the social learning theory closely associated with Jerome Kagan.

Kagan suggests children learn sex-appropriate roles through their association with parents and other significant persons. Modeling and social reinforcement of sex appropriate behaviors play a major part in explaining the development of sex-roles. Kagan assumes that the differences in sex roles between males and females result

¹Ibid., p. 49.

from socialization. He maintains:

On the basis of current knowledge, there is no good reason for arguing that the anatomical and physical differences between human males and females...place serious constraints on the successful assumption of the total variety of vocational and social roles available in our society.¹

A third theory, the cognitive, is postulated by Lawrence Kohlberg. "Cognitive theorists emphasize the idea that commonly held social stereotypes define what is masculine and feminine for almost all members of a culture."²

Kohlberg asserts, "Oddly enough, our approach to the problems of sexual development starts directly with neither biology nor culture, but with cognition."³ He further explains the universality of sex-role attitudes and suggests that the development process is cognitive rather than biological because the organization of social-role concepts is a cognitive process.

It stresses the active nature of the child's thought as he organizes his role perceptions and role learnings around his basic conceptions of his body and his world.⁴

The learning of sex appropriate behaviors is, according to Kohlberg, a process which "is selective and

¹Kagan, p. 115.

²Franken, p. 18.

³Lawrence Kohlberg, "A Cognitive-Developmental Analysis of Children's Sex-Role Concepts and Attitudes, The Development of Sex Differences, ed., E. Maccoby, (Stanford, Ca.: Stanford University Press, 1966), p. 82.

⁴Ibid., p. 83.

internally organized by relational schemata rather than directly reflecting associations of events in the outer world."¹ Selection and internal organization by relational schemata is a cognitive process. Reflections of associations of events in the outside world is a social reinforcement process. It becomes apparent, therefore, that Kohlberg is arguing that sex-role development is largely a cognitive process rather than a social reinforcement process.

Kohlberg would agree with Kagan that the development of sex-roles is a learning process. Kagan considers this process social, while Kohlberg identifies the developmental process as internal and therefore, cognitive. Nevertheless, both theorists support the contention that sex-roles are learned and/or acquired.

The psychoanalytic theorists maintain psychosexual development is largely biological. The proponents of the cognitive developmental theory view sex-role development as primarily a cognitive process. Social learning theorists assert psychosexual development occurs through cultural forces. It is neither the attempt of this review to resolve what appears to be another round in the long standing nature-nuture conflict nor to pinpoint the exact nature of sex-role development. It can only be suggested that the biological, the social and the cognitive all

¹Ibid., p. 83.

influence sex-role development.

In her examination of cross-cultural and longitudinal studies, Jeanne Block states:

I regard as a fundamental task of the developing individual the mediation between internal biological impulses and external cultural forces, both coexisting in his or her life space and life-span. The process of mediation is a complex derivative of contemporaneous ego and cognitive development.¹

In effect, Block is blending the three major theories presented in this review and asserting her belief in a synthesis of the biological and cultural forces which she sees as being mediated by the cognitive. She views sex-role development occurring in stages as reported by Loevinger (1966 and 1970) in Table 1. (The fifth column is Block's addition on pages 19 and 20.) The underlying assumption is that sex-role development is acquired and/or learned in stages as outlined in Table 1.

Block concludes from her examination of cross cultural and longitudinal studies that our society needs to redefine the traditional bi-polar sex-roles of masculinity and femininity and to revamp our socialization practices.² In other words, we need to learn some new ways of behaving, and we need to learn how to teach people these new ways. Redefining sex-roles and developing new social practices is both cognitive and social and, in essence, is

¹Block, p. 65.

²Ibid., p. 78.

Table 1

Loevinger's Milestones of Ego Development¹ and
Extrapolations to Sex Role Development¹

Loevinger's milestones of ego development				Sex Role Development Extrapolated
Stage	Impulse Control	Interpersonal Style	Conscious Concerns	Conceptions of Sex Role
Presocial/ symbiotic		Autistic, symbiotic	Self versus nonself	
Impulse ridden	Impulse ridden, fear	Exploitive, dependent	Sexual and aggressive bodily feelings	Development of gender identity, self-assertion, self-expression, self- interest
Self- protective (formerly opportu- nistic)	Expedient, fear of being caught	Exploitive, manipulative, wary	Advantage, control, protection of self	Extension of self, self- extension, self- enhancement
Conformity	Conformity to external rule	Reciprocal, superficial	Things, appearance, reputation, self- acceptance	Conformity to external role, development of sex role stereotypes, bifur- cation of sex roles

¹Ibid., p. 65.

Table 1 (Continued)

Loevinger's milestones of ego development				Sex Role Development Extrapolated
Stage	Impulse Control	Interpersonal Style	Conscious Concerns	Conceptions of Sex Role
Conscientious	Internalized rules, guilt	Intensive, responsive	Differentiated inner feelings, motives, self- respect	Examination of self as sex role exemplar vis-à-vis inter- nalized values
Autonomous	Coping with conflict, toleration of differences	Intensive concern for autonomy	Differenti- ated inner feelings, role concepts, self fulfillment	Differentiation of sex role, coping with conflicting masculine- feminine aspects of self
Integrated	Reconciling inner con- flicts, renunciation of unattain- able	Cherishing of individ- uality	All of the above plus identity	Achievement of indi- vidually defined sex role, integration of both masculine and feminine aspects of self, androgynous sex role definition

a learning process. Block assumes that new sex roles can be learned, and this includes the androgynous role.

Block refuses to let the nature-nuture argument polarize theory or practice. In this she is joined by a number of theorists engaged in brain research. These researchers, while recognizing the important part played by biology in the development of sex differences, insist, nevertheless, that recognition be given to the major role played by learning. Jerre Levy believes that brain specialization exists from birth but emphasizes that "a brain is meant to experience...and the rate of brain maturation depends on how much the growing child experiences."¹

Daniel Goleman concludes from Levy that "while the site of a particular skill may be fixed from birth, learning determines how much that skill develops."² He goes on to state that "any skill improves with practice, and how well a person's genetic potential for a given ability is realized depends on practice."³

Diane McGuinnes and Carl Pribram believe sex differences are influenced by different sex hormones.⁴

¹Daniel Goleman, "Special Abilities of the Sexes: Do They Begin in the Brain," Psychology Today, XII (November, 1978), 55.

²Ibid., p. 55.

³Ibid., p. 55.

⁴Ibid., p. 48.

This view of biological differences is also supported by Maccoby and Jacklin who maintain that there is a hormonal link to aggression. They cite cross cultural data as well as similarities in subhuman primates in support of this view.¹ Though they support a biological view, they are adamant in reminding that:

The existence of a sex-linked genetic determiner of spatial ability does not imply that visual-spatial skills are unlearned. The specific skills involved in the manifestation of this ability improve with practice. Furthermore, cross-cultural work indicates that the sex differences can be either large or small, or may even disappear, depending upon cultural conditions affecting the rearing of the two sexes.²

While admitting genetic determining factors may be sex linked, Maccoby and Jacklin stress the importance of social learning and agree with Kohlberg³ that sex-role development is largely a cognitive process. They stated:

We believe that the processes of direct reinforcement and simple imitation are clearly involved in the acquisition of sex-typed behavior, but that they are not sufficient to account for the developmental changes that occur in sex typing.⁴

Maccoby and Jacklin conclude, therefore, that:

A child's sex-role concepts are limited in the same way the rest of his concepts are by the level of cognitive skills he [she] has developed.⁵

¹Eleanor E. Maccoby and Carol N. Jacklin, "Summary and Commentary," Female Psychology: The Emerging Self, ed., Sue Cox (Chicago: Science Research Associates, 1976), p. 115.

²Ibid., p. 116.

³Ibid., p. 121

⁴Ibid., p. 121.

⁵Ibid., p. 121.

A review of the three theoretical constructs associated with sex-role development indicates, 1) biological sex-linked determiners are, indeed, a factor; 2) sex-role development is assimilated through one's culture in a social learning process; and 3) a cognitive developmental process accounts for changes occurring in sex typing. The research indicates that biological, social, and cognitive factors do affect sex-role development, and that sex-role behaviors are learned. It seems reasonable to hypothesize, then, that new behaviors can also be learned. If the sex-role behaviors of the past are inappropriate for the future there is hope that appropriate behaviors can replace those no longer needed. But then the question arises, what is the appropriate behavior for the future?

Androgyny

Since there is a substantial body of literature supporting the contention that sex-role development can be learned, whether through a cognitive process or a socialization process or a combination of both, it seems reasonable to explore the direction of the learning. If it seems feasible to change our sex-role socialization patterns as Block is suggesting, what should be the nature of that change? Block herself is adamant in suggesting change toward androgynous self perceptions as indicated in her fifth column in Table 1. She perceives the mature person

as being an "integrated person" combining the masculine and feminine aspects of self which she defines as an androgynous sex-role.¹

Until recently the aspects of our humanness has been viewed as bi-polar. Spence and Helmreich stated:

A pervasive view of these clusters of masculine and feminine attributes is that they are bipolar opposites. That is, masculine characteristics essentially preclude the appearance of feminine ones, so that individuals who possess one set of characteristics are likely to be relatively deficient in the other.²

They further add that it has been the appropriate goal of socialization to tie masculine and feminine characteristics to sex appropriate sex-roles as defined by society.³ Within the context of the traditional sex-role view, duality of masculine and feminine qualities in one individual has been viewed as unhealthy. The skewed distribution of masculinity within males and femininity within females has been considered as sex appropriate and healthy.

The current view holds that masculinity and femininity are independent of gender and are actually human characteristics which have been culturally associated with gender. In this study, the Bem Sex-Role Inventory,

¹Block, p. 65.

²Janet T. Spence and Robert L. Helmreich, Masculinity and Femininity (Austin and London: University of Texas Press, 1978), p. 17.

³Ibid., p. 10.

authored by Sandra L. Bem is being used for definitions of what attributes have been considered to be masculine and what attributes have been considered feminine. The process for selection of these items will be discussed in connection with the discription of the B.S.R.I. in the instrumentation section of Chapter 3. For the present, Table 2 (on pages 26 and 27) presents the personality attributes associated with masculinity and femininity.¹ When these terms are used, they will represent some aggregate of the qualities represented by the masculine items and some aggregate of the qualities represented by the feminine items. "Androgyny" will mean integration of both masculine and feminine qualities within a person independent of gender.

The duality of masculine and feminine qualities within individuals has long been recognized as a possibility. Freud uses terms like bisexuality and suggests it is an inherent quality. His perception is restricted to unconscious inclinations, and is still basically bi-polar and skewed. Robert Harper synthesizes his theory:

First is his (Freud) hypothesis of bisexuality of human beings; no male is devoid of some strong wishes of feminine nature, and no female is without some underlying masculine tendencies.²

¹Sandra L. Bem, "Probing the Promise of Androgyny," in Kaplan and Bean, p. 52.

²Harper, p. 16.

Table 2

The Masculine, Feminine and Neutral Items
On the Bem Sex-Role Inventory
Are Listed Below

Masculine items	Feminine items	Neutral items
49. Acts as a leader	11. Affectionate	51. Adaptable
46. Aggressive	5. Cheerful	36. Conceited
58. Ambitious	50. Childlike	9. Conscientious
22. Analytical	32. Compassionate	60. Conventional
13. Assertive	53. Does not use harsh language	45. Friendly
10. Athletic	35. Eager to soothe hurt feelings	15. Happy
55. Competitive	20. Feminine	3. Helpful
4. Defends own beliefs	14. Flatterable	48. Inefficient
37. Dominant	59. Gentle	24. Jealous
19. Forceful	47. Gullible	39. Likable
25. Has leadership abilities	56. Loves children	6. Moody
7. Independent	17. Loyal	21. Reliable

¹Sandra L. Bem, "Probing the Promise of Androgyny," Beyond Sex-Role Stereotypes, ed., Alexandra Kaplan and Joan Bean (Boston: Little, Brown and Co., 1976), p. 52

Table 2 (Continued)

Masculine items	Feminine items	Neutral items
52. Individualistic	26. Sensitive to the needs of others	30. Secretive
31. Makes decisions easily	8. Shy	33. Sincere
40. Masculine	38. Soft spoken	42. Solemn
1. Self-reliant	23. Sympathetic	57. Tactful
34. Self-sufficient	44. Tender	12. Theatrical
16. Strong personality	29. Understanding	27. Truthful
43. Willing to take a stand	41. Warm	18. Unpredictable
28. Willing to take risks	2. Yielding	54. Unsystematic

Note: The number preceding each item reflects the position of each adjective as it actually appears on the Inventory. A subject indicates how well each item describes himself or herself on the following scale: (1) Never or almost never true; (2) Usually not true; (3) Sometimes but infrequently true; (4) Occasionally true; (5) Often true; (6) Usually true; (7) Always true or almost always true.

Although Freud considered this bisexuality as a normal phenomenon, the term "homosexuality" has been closely associated with Freud's theory.¹ The general consideration of homosexuality has been viewed as abnormal. Jung furthered the hypothesis of bisexuality with the Amina and Amimus within males and females, but eliminating "bisexual" terminology. (Jung, 1964) June Singer, a Jungian analyst, offers a definition of bisexuality in an attempt to clear up the confusion between it and androgyny: "Bisexuality concerns itself primarily with interpersonal relationships. Bisexuality is by no means the same as androgyny."² Singer traces the evolutionary threads of androgyny in eastern and western literature and mythology and asserts:

Androgyny begins with our conscious recognition of the masculine and feminine potential in every individual and is realized as we develop our capacity to establish harmonious relations between the two aspects within the single individual.³

In addition to defining androgyny, Singer is also contending that it is possible to develop our androgynous potential. She implies that androgyny is an inherent quality which needs nurturing to develop to its full, natural potential.

Ann Constantinople (1973) points out that

¹Ibid., p. 16.

²June Singer, Androgyny (New York: Anchor Books, 1977), p. 18.

³Ibid., p. 32.

inventories measuring masculinity and femininity have historically considered these dimensions as bipolar. She takes issue with the validity of such devices because, she contends, masculine and feminine qualities within individuals seem to be more unidimensional in nature and, therefore, should be represented by a single score.¹

Sandra Bem (1974) introduced the development of a sex-role inventory designed to treat masculinity and femininity not as not as "bipolar ends of a single continuum"² but as two independent dimensions yielding a single score. This instrument, The Bem Sex-Role Inventory, is based on the concept of androgyny. Constantinople took issue with the concept "That if something cannot be measured, it does not exist" and maintained the unidimensionality of masculinity and femininity does exist but that a measuring device had not yet been devised. Bem created one. The concept of androgyny seems to be evolving from a theoretical notion into a recognized reality.

Proponents of psychological androgyny seem to be in agreement that it is the healthier alternative--healthier, that is, than sex-typed personalities whose sex-role perceptions are skewed significantly masculine for males

¹Anne Constantinople, "Masculinity-Femininity: An Exception to a Famous Dictum?," in Kaplan and Bean, p. 28.

²Bem, "The Measurement of Psychological Androgyny," p. 155.

and skewed significantly feminine for females. Bem refers to sex-typed persons identified in her inventory as highly masculine or highly feminine. Persons who are low in both masculine and feminine qualities, males low in masculine qualities and females low in feminine qualities, are classified as undifferentiated. These people are not androgynous. Persons have to be high in both masculine and feminine qualities in order to be classified as androgynous. Bem describes the androgynous person:

Because his or her self-definition excludes neither masculinity nor femininity, the androgynous individual should be able to remain sensitive to the changing constraints of the situation and engage in whatever behavior seems most effective at the moment, regardless of its stereotype as appropriate for one sex or the other.¹

The androgynous person has a wider range of behaviors available to him or her within given situations. This is not considered true for sex-typed persons. Bem cites Kagan (1964) and Kohlberg (1966) as characterizing the sex-typed person as, "motivated, during the course of sex-role socialization, to keep his or her behavior consistent with an internalized sex role standard."² Thus, behavior for the sex-typed person is restricted to the socially appropriate behaviors affixed to masculinity for males and femininity for females.

¹Bem, "Sex Role Adaptability: One Consequence of Psychological Androgyny," pp. 634-635.

²Ibid., p. 634.

Persons with androgynous sex-role self perceptions are also suspected to show higher intelligence than their sex-typed counterparts. Bem cites relevant research which corroborates her assumption that:

1. High femininity in females has consistently been correlated with high anxiety, low self-esteem, a low social acceptance and,

2. High masculinity in males has been correlated during adulthood with high anxiety, high neuroticism, and low self-acceptance.¹

In addition, Bem reports Maccoby's 1966 findings which concluded that sex-typed boys and girls show "lower overall intelligence, lower spatial ability, and lower creativity."² Maccoby attributed girls poorer performance on tests of spatial ability and field-independence to dependence. The 1974 summary of the 1966 studies also found aggression and impulsivity related to poor intellectual performance in boys but not in girls.³ Since aggression is a quality associated with high masculinity in Bem's definitions and dependence for females is associated with high femininity, Maccoby's findings support the connection between sex-typing and the lower overall intelligence mentioned above. Maccoby also found for both sexes that independence (autonomy) is closely associated with good intellectual

¹Ibid., p. 634.

²Ibid., p. 635.

³Eleanor Maccoby and Carol Jacklin, The Psychology of Sex Differences (Stanford, Calif.: Stanford University Press, 1974), p. 132.

performance.¹ Bem's studies of 1974 and 1975 showed persons identified as androgynous to be more independent than their sex-typed counterparts. Theoretical agreement again comes from Maccoby and Jacklin:

Boys, being more often at the impulsive (aggressive) end of the scale, profit intellectually from becoming less impulsive; girls, being more often at the passive, timid end of the scale, profit from becoming more bold.²

These behaviors closely associated with those persons scoring higher on tests of intelligence are consistent with what is understood to constitute the androgynous personality.

The qualities defined earlier as androgynous are also seen as desirable in the context of leadership abilities. Managers and leaders have historically been males. Maccoby attributes the biological component of greater aggressiveness on the part of the male to the hypothesis that, "dominance and leadership are inevitably linked to aggression."³ However, she suggests "the iron-fisted tycoon appears to be waning"; business leadership styles are moving toward nonaggressive alternatives of negotiation, group support and group interaction.⁴ Maccoby suggests the possibility of achieving status by alternatives to

¹Ibid., p. 132.

²Ibid., p. 133.

³Ibid., p. 368.

⁴Ibid., pp. 368-369.

aggression and dominance. "We believe we see a shift toward more nonaggressive leadership styles in high level management, but at the moment this is speculation."¹ This speculation is consistent, however, with the leadership theory of Douglas McGregor. McGregor offers Theory Y (a team management style) representative of cooperation and negotiation styles as an alternative to Theory X (an authoritarian style) which is more illustrated by directive and controlling styles of leadership.² McGregor calls for changes in traditional managerial policy and practice to include the employment of individuals "who will exercise self-direction and self-control in the service of objectives to which they are committed."³ These qualities of self-direction and self-control are similar to qualities of independence and autonomy identified with the androgynous person as defined by Maccoby and Bem. Though not conclusive in any empirical sense, the speculations by these theorists seem to indicate that the emerging leader of the future will have attributes more like those we understand as androgynous rather than the attributes associated with high masculinity in the absence of femininity.

To offset the dominance tendencies and to help

¹Ibid., p. 369.

²Douglas McGregor, Leadership and Motivation, eds., Warren G. Bennis, and Edgar H. Schein (Cambridge, Mass.: The M.I.T. Press, 1966), pp. 5-16.

³Ibid., p. 28.

leaders develop their Theory Y attitudes, Michael Maccoby reminds us of McGregor's recommendation to offer training through such groups as the National Training Laboratories or other institutions promoting attitudes and abilities associated with team management.¹ Maccoby characterizes the "gamesman" as the most effective corporate leader and adds further, "In my own experience, gamesmen are attracted to McGregor's (Y) theory more than other types."² Maccoby also refers to Peter Drucker ("who is the most respected management theorist among the top executives I interviewed"), and points out his valuing of team management practices and also his realization that this kind of organization requires "very great self-discipline from each member of the team."³ Whether this self-discipline is possible for managers or employees is not the question here. The fact that it is looked toward as desirable lends support to its possible desirability for the future. Again, this kind of self-discipline seems paralleled with what we know to constitute androgyny.

Not everyone is androgynous. Bem's 1974 study indentified 1,500 college students as fifty percent sex-typed and thirty-five percent androgynous with fifteen

¹Michael Maccoby, The New Corporate Leaders: The Gamesman (New York: Simon and Schuster, 1976), p. 215.

²Ibid., p. 217.

³Ibid.

percent being sex reversed (males showing significant high feminine scores and females showing high masculine scores).¹ However, considering the literature which supports the idea that sex-roles are learned and the possibility that they can be relearned or changed, it seems reasonable to seek change in the direction of androgyny.

The fact that the literature cited for support of androgynous qualities in leadership is primarily in the area of business does not reduce its relevance for this study which is seeking ways to develop potential educational leaders. The fundamental qualities of good leadership are constant although their specific applications may vary with the situation. McGregor is a major reference in school administration. Direction of leadership is not exclusively the province of graduate students. The basis for that leadership, whether in administration or in the classroom, begins at birth. For our purposes, however, its improvement begins with undergraduates.

Models to Combat Sexism

McGregor calls for group dynamic experiences as provided by the National Training Laboratories as a means of moving from more authoritarian leadership styles to

¹Sandra L. Bem, "Androgyny Vs. the Tight Little Lives of Fluffy Women and Chesty Men," Psychology Today, IX, No. 4 (1975), 61.

ones supportive of team management. A similar kind of humanistic approach is also recommended as a means to changing attitudes regarding sex stereotyping. John McLure offers:

Another task is to begin building small teams of human relations experts who could apply human relations training techniques to school and service work and have staff members confront themselves and work out problems which may limit the full development of both sexes.¹

J.R. Moreland responded to the recommendations for group training including an emphasis on sex-roles in his program with college students.² A semester of group facilitation, he felt, promoted healthier views of students sex-roles. However, no formal means of evaluation was employed except subjective observations. Moreland identifies the need for program evaluation to substantiate methodology. Though the call for human relations type methodology as a means of creating new attitudes in the direction of androgyny is not over-whelming, and while the literature does not specifically point out which training methods work better than others, the need for determining the extent to which training programs may or may not be

¹John W. McLure, "A Proposed Model for Examining Sex Discrimination in Education," Women and Public Policy: A Humanistic Perspective, eds., Mildren Lavin and Clara Oleson (Iowa City, Iowa: University of Iowa, Institute of Public Affairs, 1974), p. 83.

²John R. Moreland, "A Humanistic Approach to Facilitating College Students About Sex Roles," Counseling Psychologist, VI, No. 3 (1976), 61-64.

successful in promoting androgyny is apparent.

Summary

This review of the literature has shown that sex-roles are seen as a function of biology, socialization, and cognitive processes. While theorists may differ on the proportionate emphasis accorded each of these, there is, nevertheless, a strong body of informed opinion which holds that learning is a major factor in the final determination of sex-roles. Since, therefore, sex-roles can be learned, the question arises as to which roles should be learned.

The literature referred to herein supports the contention that the androgynous model is the most desirable. It promotes more degrees of freedom; it correlates highly with higher intelligence, and it promises more of what is known as leadership behavior.

The literature also shows that little has been done in the way of trying to modify college students' sex role perception. What little has been done has not been measured effectively. The purpose of this study is to make a contribution to remedying that situation.

Chapter 3

RESEARCH DESIGN AND METHODOLOGY

General Design

To determine what changes, if any, occurred in the sex-role self perceptions of Drake students following their participation in the human relations curricular model, the Bem Sex-Role Inventory was administered in a pretest, posttest-1, and posttest-2 sequence to both a control and an experimental group. Professional colleagues were asked their opinions concerning the use of the inventory as a measuring device with Drake students. The B.S.R.I. has been principally used for classification. A telephone call to its author, Sandra Bem, revealed she knew of no other attempts to use the inventory to measure change but encouraged the effort. Professional colleagues concurred, "Why not?"

Permission to carry out the study was obtained from the College of Education personnel at Drake University. To secure anonymity for students taking the inventory, instructions included the omission of their real names and the substitution of their mother's maiden name for research identification purposes.

The experimental sample was comprised of 40 students selected from 51 original subjects enrolled in the education

block, titled "Ed. 165-66, Child and Society." The control sample was comprised of 34 students randomly selected from 102 original subjects enrolled in "Ed. 94, Educational Psychology" and who had not taken Ed. 165-66. The pretest was administered on the second day the classes met.

Posttest-1 was administered two weeks after the pretest during which time the experimental group participated in the human relations curricular segment and the control group attended their Educational Psychology classes.

Posttest-2 was administered at the end of the semester with the experimental group taking it immediately prior to their final exam and the control group taking it following their final exam. Each inventory administration took approximately one-half an hour including instructions, distribution and collection. The data generated by the inventory was tabulated and analyzed to answer the questions posed in this study and to test the hypothesis presented for consideration.

Population and Sample

The study's population is defined as sophomore and junior teacher education students attending Drake University, a private institution located in the Midwest. Ninety percent of Drake's students come from homes located in the greater Midwest region of the United States.

The available experimental sample consisted of six males and thirty-four females. A random numbers table was

used to select the control sample of 6 males and 28 females from 102 students in two classes of Educational Psychology.

Two research requirements are responsible for the difference between numbers of subjects originally tested and the numbers in the actual experimental and control samples used in the calculations. For students in the experimental group to become part of the sample, they had to be present at 7 class meetings, missing no more than three days in attendance. For students in both the experimental and control groups, students had to be in attendance on the days the inventory was administered or willing to fill it out and turn it in later. The experimental group's mortality rate was 11, five males and six females. The mortality rate for the control group was 16.

Permission to carry out the study was obtained from team members responsible for the curriculum block in which the human relations training had traditionally been included. Permission was then secured from the Coordinator of the Department of Curriculum and Instruction in the College of Education at Drake University. Students were given an option of participating in an evaluation process for the college.

Data and Instrumentation

The data for this study was drawn from student's self reports of their sex-role perceptions as measured by the B.S.R.I.

To learn what changes, if any, occurred in the sex-role self perception of Drake education students following their participation in the human relations component, students were asked to indicate on a 7-point scale how well each of the 60 masculine, feminine, and neutral personality characteristics described themselves. The scale extends from 1, "Never or almost never true" to 7, "Always or almost always true." (See Appendix A). On the basis of the response, a single score is yielded representing a person's sex-role endorsement.

The B.S.R.I. is an individual paper-and pencil instrument designed to distinguish androgynous individuals from those describing themselves as more sex-typed, i.e., masculine and feminine. Its unique feature of two independent scales distinguishes it from other masculinity-femininity scales such as the California Psychological Inventory. The masculine and feminine items on the B.S.R.I. were chosen as being "masculine and feminine on the basis of sex-typed social desirability and not on the basis of differential endorsement by males and females as most other inventories have done."¹ On the premise that masculinity has been associated with instrumental orientation and femininity associated with expressive orientation, Bem and several Stanford University students compiled a list of

¹Bem, "The Measurement of Psychological Androgyny," p. 155.

200 personality characteristics considered "positive in value and either masculine or feminine in tone."¹ 200 items were selected which were considered neither masculine or feminine. Forty Stanford undergraduate judges rated the items on a scale of 1 to 7 in terms of their desirability for men and for women in American society. Final masculine and feminine items represented those rated as significantly ($p < .05$) more desirable for one sex than for another. Neutral items were selected if, "it was independently judged by both males and females to be no more desirable for one sex than for the other ($t < 1.2$, $p > .2$) and if male and female judges did not differ significantly in their overall desirability judgments of that trait ($t < 1.2$, $p > .2$)."²

The B.S.R.I. treats masculinity and femininity as two independent desirable dimensions rather than as polar opposites. In effect, the inventory contains a masculine scale and a feminine scale. It allows a person to indicate equal degrees of masculinity and femininity and yield a single score making it possible to measure an androgynous self-perception.

A person's sex-role endorsement is determined from the inventory by the difference between masculine and feminine scores. The B.S.R.I. contains 60 items, 20

¹Ibid., p. 156.

²Ibid., p. 157.

feminine, and 20 neutral alternating every other one.

From the inventory's beginning in 1973 to the present over 2,000 persons, mostly undergraduate students at both Stanford and Foothill Junior College have been administered the B.S.R.I. The original sample included 444 male and 279 female students in introductory psychology at Stanford and 117 male and 77 female paid volunteers at Foothill Junior College. A person's sex-role self-concept is determined from the inventory by the difference between scores on the Masculine and Feminine sex-typed scales.¹

Two measures of reliability are employed:

1. Internal Consistency or Split-half Reliability using the Spearman-Brown formula (Stanford male $r=.11$; female $r=.14$; Foothill male $r=.02$; female $r=.07$) which indicate the Masculinity and Femininity scores of the B.S.R.I. are logically independent. However, the split is made in terms of items rather than time.

2. Test-Retest indicate scores to be highly reliable over a four-week interval (Masculinity $r=.90$; Femininity $r=.90$; Androgyny $r=.93$; Social Desirability $r=.89$) using Product-moment correlations.²

The second inventory was administered to 28 males and 28 females from the Stanford normative sample. Most significant are the estimates of internal consistency of the B.S.R.I. using coefficient alpha computed separately from the Masculinity, Femininity, and Social Desirability scores of subjects in each normative sample. (Masculinity $\alpha=.86$;

¹Ibid., p. 158.

²Ibid., pp. 160-161.

Femininity $\alpha = .80$; Social Desirability $\alpha = .75$ in the Stanford sample) and (Masculinity $\alpha = .86$; Femininity $\alpha = .82$; Social Desirability $\alpha = .70$ in the Foothill sample). Androgyny was correlated using the formula provided by Nunnally (1967) for linear combinations. (Femininity-Masculinity) The reliability of the Androgyny difference score was .85.¹

Efforts continue to be underway to provide construct validity for the B.S.R.I. The inventory has shown to be internally consistent as mentioned above respective to reliability. Validity with regard to external data is limited considering the non-availability of measures which view masculinity and femininity as two independent, desirable dimensions. Correlations with other measures of Masculinity and Femininity do not show particularly high correlations. The B.S.R.I. does show a higher correlation with the California Psychological Inventory than the Guilford-Zimmerman scale. Bem suggests, however, that the B.S.R.I. is measuring an aspect of sex roles which is not directly tapped by either of these scales.² Factor Analysis

¹Ibid., p. 160.

²Ibid., p. 161.

of the B.S.R.I. by Gaudreau¹ and Waters² support the use of the Masculinity-Femininity as independent constructs. In both instances, the sex of the subject was found to be not significant.

Instructions prior to the administration of the B.S.R.I. were brief. Students were given the option of participating. They were told simply that this exercise was part of an evaluation procedure being used by the College of Education. Specifics were held to a minimum. Students were told additional information and results (group data) would be available in August, 1979. Interested persons were encouraged to leave a name and address to receive printed material. It was stressed in beginning remarks that anonymity would be provided by use of their mother's maiden name as identification. They were told the results would be analyzed in terms of group data rather than individual data.

Participating students were also asked to fill out an accompanying information sheet after checking their responses to the inventory. Placing the information sheet at the end was intentional. The purpose was to avoid student distraction or invite speculation as to what the

¹P. Gaudreau, "Factor Analysis of the Bem Sex-Role Inventory," Journal of Consulting and Clinical Psychology, XXXV (April, 1977), 299-302.

²C.W. Waters, "Factor Analysis of Masculine and Feminine Sex-Typed Items from Bem Sex-Role Inventory," Psychological Reports, XXX (April, 1977), 567-70.

study might be about. The sheet itself (see Appendix B) contains some items which are of no particular concern to the present study.

Because this researcher is female, attempts were made to avoid any possibility that students might suspect, "A feminist has come to test us!" This female researcher gave the initial instructions for the pretest to the experimental group and to one class which was part of the control group. The remaining students in the control group were given instructions by their professor. For the second round, Posttest-1, another team member, male, gave the instructions for both experimental and control groups. Posttest-2 was administered by this researcher for the experimental group and part of the control group. The remaining students in the control group received instructions from their professor again. This process was deemed necessary even though it violates the requirement of consistency for research control. This researcher was also the co-facilitator of the human relations curricular segment and wanted to avoid as much as possible any connection between the training and the testing.

Treatment

An original group of 51 students enrolled in "Education 165-166, Child and Society," a course for sophomore and junior education students, became the available sample representating the study's population for the

experimental group. Subjects' participation in the human relations training component occurred during the first two weeks of the semester excluding the first day which was used for general introduction, business, and the initial B.S.R.I. testing.

The experimental subjects participated in the component being used as the treatment for this study from Thursday, January 11, 1979, through Wednesday, January, 1979, excluding weekends: ten weekdays for afternoon sessions three hours in length each day. The course was scheduled from 12:30 p.m. to 3:30 p.m. The sessions were usually dismissed around 3:00 p.m. due to basketball player students leaving for practice or games or fine arts students leaving for practice.

The treatment's major emphasis was on interpersonal communication through group process. The subjects participated in exercises designed to promote personal exploration of values, self disclosure, affirmation, and conflict management with particular focus on the dynamics of sex-role socialization. The 51 subjects assigned themselves (through a large group exercise) to one of eight groups. There were five groups of six individuals in each group and two groups of eight individuals in each. Most of the exercises took place within each group. The groups created group names, took their own attendance, and monitored the collection of papers and drawings within their group folder. Procedures were designed to strengthen personal autonomy

and promote group cohesiveness. Managing the conflict of independence and cooperation was the central theme.

Methodology included both interpersonal and intrapersonal approaches. Though the model emphasizes a strong interpersonal methodology, it also included an intrapersonal dimension. The interpersonal approach focuses on growth through interactions with another person, exercises in dyads (with another person) or in groups. The intrapersonal is individual and is experienced in personal reflections, private thoughts. Encouragement was always given by the facilitators to share, if appropriate, reflections with another person.

The following general goals and objectives were offered to the subjects on the first day the treatment began:

1. To become better acquainted with and practice some basic human relations skills.

- a. authenticity
- b. openness
- c. awareness of feelings of self/others
- d. active listening
- e. empathy

2. To become aware of my own feelings about Male/Female issues.

- a. explore my own sex-role socialization
- b. clarify my own position
- c. explore future directions

A day by day outline for sequenced activities is referred to by brief descriptors in Appendix D. The model blends experiential exercises with cognitive exercises. A definite structure of group interaction framed by cognitive

input was designed to be consistent with the theoretical basis which suggests that behaviors are learned, and that a major part of that learning is a cognitive process. The model was also designed to promote the direction of learning toward awareness of personal androgyny without the term. For the purpose of this study, studies of androgyny by Bem and others were referred to only briefly and indirectly to avoid any association between class activities and the B.S.R.I. which includes the author's name.

Analysis

This study is concerned with the sex-role self perception of students and asks what change, if any, occurs in the sex-role self perceptions of students following their participation in the aforementioned human relations curricular component? To answer the preceding question, a hypothesis was formulated: Students' self perceptions of their sex-role as measured by the Bem Sex-Role Inventory will, following their participation in the specified human relations component, shift toward androgyny. To test this hypothesis, the following null hypothesis was stated:

Null hypothesis: there is no difference between the mean change in sex-role self perceptions of the group experiencing the human relations component and the mean change in self perceptions of the group not experiencing the human relations component.

$$H_0: \mu_{D_E} = \mu_{D_C}$$

The symbol μ represents the mean. The symbol D represents the amount of change in sex-role self perceptions toward androgyny. The symbols E and C represent the Experimental group and the Control group respectively.

In addition, an alternative hypothesis was stated:

$$H_1: \mu_{D_E} \geq \mu_{D_C}$$

The null hypothesis will be rejected and the alternative hypothesis accepted if the one-tailed t-Test of Difference Between Mean Change scores is significant at the .05 level of probability ($p < .05$). The t-ratios are considered significant for the Total group ($t > 1.69$); for Females ($t > 1.67$); and for Males ($t > 1.8$).

To test the null hypothesis, a sequence of statistical computations was made from individual and group scores on the Bem Sex-Role Inventory. Subjects' raw scores were converted to standard t-scores by computing a mean and a standard deviation for each individual's masculine items and for each individual's feminine items on the B.S.R.I. These computations were accomplished through use of the SPSS Statistical Computer Packet designed by Bem and her associates. They yielded a t-score for each subject on the pretest, on posttest-1, and on posttest-2. Difference scores between the t-scores on the pretest and the two posttests were figured for each subject. A subject's score was considered positive if it moved toward 0, negative if it moved away from 0.

A mean difference change score was then computed for the control sample and for the experimental sample and for females and males within each sample. These mean difference change scores represent the difference between the pretest and posttest-1 and between the pretest and posttest-2 for the experimental and control samples and the females and males within each sample. Thus, the computation yielded six mean difference change scores for the control and experimental samples: two total group means; two female means and two male means. To test for significant difference between those means, t-tests for independent samples were calculated for a Difference Between Mean Change scores.

The t-tests were calculated to determine whether a difference existed between the mean change in sex-role self perceptions of the group experiencing the human relations component and the mean change in self perceptions of the group who did not participate in the human relations component.

The t-test was chosen as an appropriate statistic for determining changed scores because:

1. there is good reason to assume the population is not markedly different from the normed Stanford population and approaches a normal distribution with respect to the traits being tested,
2. the t-test is a small sample statistic and appropriate for this study which has a small N,
3. the samples do not violate the t-test requirement of similar variances. (See Appendix C, columns 5 and 8 for the variances of the experimental and the control samples.)

The formula for the t-score representing the difference between a subject's masculine and feminine score on the B.S.R.I. is the following t-test formula:

$$t = \frac{\bar{X}_F - \bar{X}_M}{\sqrt{\frac{s_F^2 + s_M^2}{N-1}}}$$

A difference score was computed by simple arithmetic subtraction of each subject's t-score on the pretest from his/her t-score on the posttest-1 and again from his/her t-score on posttest-2.

Mean difference change scores were computed for the control and the experimental sample and for the females and males within each of those samples by the following mean formula:

$$\bar{X}_D = \frac{\sum X}{N}$$

To determine if any change occurred between the experimental and control groups between pretest and posttest-1 and between pretest and posttest-2, a t-test of Difference Between Mean Change scores was employed:¹

¹J.P. Guilford and Benjamin Fruchter, Fundamental Statistics in Psychology and Education (New York: McGraw-Hill Book Company, 1978), p. 157.

$$t = \frac{\bar{X}_{D_C} - \bar{X}_{D_E}}{\sqrt{\left(\frac{\sum x_C^2 + \sum x_E^2}{N_C + N_E - 2} \right) \left(\frac{N_C + N_E}{N_C N_E} \right)}}$$

Chapter 4

FINDINGS

The review of literature revealed little has been done to modify college students' sex-role perceptions toward androgyny. What has been done is apparently without evaluation. In this study, the extent to which change in students' sex-role self perceptions occurred following their participation in a specified curricular model has been determined. The change in sex-role self perceptions was measured for the experimental group and for the control group and for the females and the males within each group.

This chapter presents the findings of the study by presenting the statistical analysis of the stated hypothesis. The statistical analysis will concentrate on data and interpretation of the mean difference change scores for the control sample and for the experimental sample. In addition, the mean difference change scores for the females and for the males will also be presented and interpreted. The mean difference change scores for each of these breakdowns is presented in two categories:

1. The difference between the pretest and posttest-1, and
2. The difference between the pretest and posttest-2.

Hypothesis: Students' self perceptions of their sex-role as by the Bem Sex-Role Inventory will, following their participation in the specified human relations component, shift toward androgyny.

Null hypothesis: There is no difference between the mean change in sex-role self perceptions of the group experiencing the human relations component and the mean change in self perceptions of the group not experiencing the human relations component.

The null hypothesis was used to test the study's hypothesis. In order to test the null hypothesis, t-tests for independent samples were calculated for the difference between the mean change scores of the experimental and control subjects. Table 3 presents the findings.

Table 3

Comparison of the Sex-Role Self Perceptions of the Experimental Sample and the Sex-Role Self Perceptions of the Control Sample Using t-Tests for Differences Between Mean Change Scores

Time	Sample	Experimental Mean Change (Post-Pre) Scores	Control Mean Change (Post- Pre) Scores	"t" Value	1-Tail Prob.
Pre/Post-1	Total	-.14	.39	-1.25	ns
Pre/Post-1	Females	-.12	.31	-.90	ns
Pre/Post-1	Males	-.24	.81	-.79	ns
Pre/Post-2	Total	.001	.11	.50	ns
Pre/Post-2	Females	-.006	.02	.11	ns
Pre/Post-2	Males	.04	.54	.80	ns

As seen from Table 3, there were no significant differences between the mean change scores of the experimental group and the control group. This was true for the total groups, at both the first and second post-tests, when change was determined relative to the pretest. The was also true for males and females in both those situations. The null hypothesis is, therefore, retained. The study found there is no significant difference between the mean change in sex-role self perceptions of the group experiencing the human relations component, and the mean change in self perceptions of the group who did not participate in the human relations component, as measured by the Bem Sex-Role inventory. The differences which did occur were attributed to chance.

Chapter 5

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

The Problem

The research was designed to investigate the extent to which the interpersonal and male/female components of the human relations training model in Drake University's Teacher Education Program is effective in changing students self perceptions toward androgyny. The purpose of this study is to determine what changes, if any, take place in participants' sex-role self perception following their participation in the human relations training component.

Discussion

A theoretical framework exists which supports the contention that sex-roles are learned. A review of literature also supports androgyny as the healthy direction for that learning to take place. It views androgyny as the better alternative to sex typed behaviors. A call for programs promoting the development of sex-roles in the direction of androgyny has been heard from all the theoretical supporters of androgyny.

Theorists in administration seem to be calling for a similar posture for leadership behavior. The term androgyny, however, is not their referent. Nevertheless,

the direction is clear. How to move in that direction is the puzzle. Pinpointing the effective methodology seems the next logical step. This step includes evaluation. Problem solving by determining which comes first, the method or the evaluation process becomes complicated. Moreland's studies recommend evaluation of human relations work with college students to determine program effectiveness in offsetting the negative effects of sex-role socialization.¹

This study measured the change in sex-role self perceptions of students following their participation in a human relations program, and again at the end of the semester and found there is no significant difference between the sex-role self perceptions of students who participated and the sex-role self perceptions of those who did not participate, as measured by the B.S.R.I.

Conclusions

The conclusions that can be brought forth from this study are summarized as follows: 1) The specified human relations training component may not be effective in changing sex-role perceptions toward androgyny as measured by the Bem Sex-Role Inventory. A two week model may not have an impact sufficient to offset years of socialization. 2) It is possible that the direction of change occurred toward a developmental level different from androgyny

¹Moreland, "A Humanistic Approach to Facilitating College Students About Sex Roles," pp. 61-64.

not measurable by the B.S.R.I. Loevinger's developmental stages of sex-role development view the most mature stage as one of androgyny as interpreted by Block, 1976 and outlined in Table 1. These stages or levels, like those of Kohlberg and Piaget, are sequential in nature and require attainment of the lower levels before growth toward the higher levels can occur. Block defines the third level as one where awareness of sex-role stereotypes and socialization develops. It may be that the change occurring was at a level not measurable in terms of self perceptions. Awareness is two stages below self-perception, according to Block. If a student was at that level to begin with, for example, and moved toward androgyny but not far enough to affect self-perceptions, change would have occurred but not of a nature measurable by the B.S.R.I.

3) There may also be the possibility that enough of the students being tested were androgynous to begin with and the results of "no significant difference" between groups reflected the stability of those personalities. This last speculation is questionable but possible.

Implications and Recommendations

Most of the sex-role developmental studies researched by Loevinger, Maccoby, and Kohlberg involve young children. Little is known about the nature of sex-role development beyond puberty.

The concept of androgyny is relatively new and the methods for enhancing androgynous potential are even

newer. Moreland called for more group process methodology to achieve those objectives. Little is known about how to change sex-role self perceptions. It seems more experimentation with methodology is needed.

While subjective data (daily logs, drawings, feedback in general) seem to suggest growth toward androgyny on the part of students after experiencing the human relations training, the empirical data does not support such a conclusion.

Further research is needed to determine methods of evaluation (subjective and empirical) appropriate to differing developmental levels so that change can be measured more accurately. In addition, continued research is needed specifically on ways to affect change in the sex-role perceptions of late adolescence, i.e. college students.

Measuring humanistic objectives is a new frontier. Arthur Combs urges the use, for example, of inferences from trained personnel as an alternative to empirical testing. He states:

So much is currently being expended for research on behavioral objectives, it is time we devoted at least an equal effort to the exploration of

humanistic objectives.¹

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The need for evaluation to go hand in hand with methodology is imperative.

¹ Arthur W. Combs, "Assessing Humanistic Objectives: Some General Considerations," Humanistic Education: Objectives and Assessment (Washington, D.C.: Association for Supervision and Curriculum Development, Monograph), p. 27.

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APPENDIXES

APPENDIX A

THE BEN SEX-ROLE INVENTORY

In this inventory, you will be presented with sixty personality characteristics. You are to use those characteristics in order to describe yourself. That is, you are to indicate, on a scale from 1 to 7, how true of you these various characteristics are. Please do not leave any characteristic unmarked.

Example: Sly

Mark a 1 if it is never or almost never true that you are sly.

Mark a 2 if it is usually not true that you are sly.

Mark a 3 if it is sometimes but infrequently true that you are sly.

Mark a 4 if it is occasionally true that you are sly.

Mark a 5 if it is often true that you are sly.

Mark a 6 if it is usually true that you are sly.

Mark a 7 if it is always or almost always true that you are sly.

Thus, if you feel it is sometimes but infrequently true that you are "sly", never or almost never true that you are "malicious", always or almost always true that you are "irresponsible", and often true that you are "carefree", you would rate these characteristics as follows:

 3 Sly

 7 Irresponsible

 1 Malicious

 5 Carefree

- | | |
|------------------------------------|--|
| <u> </u> 1. Self-reliant | <u> </u> 11. Affectionate |
| <u> </u> 2. Yielding | <u> </u> 12. Theatrical |
| <u> </u> 3. Helpful | <u> </u> 13. Assertive |
| <u> </u> 4. Defends own beliefs | <u> </u> 14. Flatterable |
| <u> </u> 5. Cheerful | <u> </u> 15. Happy |
| <u> </u> 6. Moody | <u> </u> 16. Has strong personality |
| <u> </u> 7. Independent | <u> </u> 17. Loyal |
| <u> </u> 8. Shy | <u> </u> 18. Unpredictable |
| <u> </u> 9. Conscientious | <u> </u> 19. Forceful |
| <u> </u> 10. Athletic | |

1	2	3	4	5
Never of Almost Never True	Usually Not True	Sometimes But Infrequently True	Occasionally True	Often True

6	7
Usually True	Always or Almost Always True

- | | |
|---|--|
| <p> <input type="checkbox"/> 20. Feminine
 <input type="checkbox"/> 21. Reliable
 <input type="checkbox"/> 22. Analytical
 <input type="checkbox"/> 23. Sympathetic
 <input type="checkbox"/> 24. Jealous
 <input type="checkbox"/> 25. Has leadership abilities
 <input type="checkbox"/> 26. Sensitive to the needs
 of others
 <input type="checkbox"/> 27. Truthful
 <input type="checkbox"/> 28. Willing to take risks
 <input type="checkbox"/> 29. Understanding
 <input type="checkbox"/> 30. Secretive
 <input type="checkbox"/> 31. Makes decisions easily
 <input type="checkbox"/> 32. Compassionate
 <input type="checkbox"/> 33. Sincere
 <input type="checkbox"/> 34. Self-sufficient
 <input type="checkbox"/> 35. Eager to soothe hurt
 feelings
 <input type="checkbox"/> 36. Conceited
 <input type="checkbox"/> 37. Dominant
 <input type="checkbox"/> 38. Soft-spoken
 <input type="checkbox"/> 39. Likable </p> | <p> <input type="checkbox"/> 40. Masculine
 <input type="checkbox"/> 41. Warm
 <input type="checkbox"/> 42. Solemn
 <input type="checkbox"/> 43. Willing to take a
 stand
 <input type="checkbox"/> 44. Tender
 <input type="checkbox"/> 45. Friendly
 <input type="checkbox"/> 46. Aggressive
 <input type="checkbox"/> 47. Gullible
 <input type="checkbox"/> 48. Inefficient
 <input type="checkbox"/> 49. Acts as a leader
 <input type="checkbox"/> 50. Childlike
 <input type="checkbox"/> 51. Adaptable
 <input type="checkbox"/> 52. Individualistic
 <input type="checkbox"/> 53. Does not use
 harsh language
 <input type="checkbox"/> 54. Unsystematic
 <input type="checkbox"/> 55. Competitive
 <input type="checkbox"/> 56. Loves children
 <input type="checkbox"/> 57. Tactful
 <input type="checkbox"/> 58. Ambitious
 <input type="checkbox"/> 59. Gentle
 <input type="checkbox"/> 60. Conventional </p> |
|---|--|

APPENDIX B

INFORMATION DATA SHEET

61. ____ age
62. _____ college & year (example: EDUC-3)
63. _____ major
64. () Female
65. () Male

How would you best describe the nature of the community/ies in which you were raised? Check one.

Rural:

66. () town - surrounded by farming community
67. () farm

Urban:

68. () metropolitan city - population over 250,000
69. () central city - population over 50,000
70. () city - population fewer than 50,000

Urban Fringe - close or adjacent to a city...

71. () with a population over 250,000
72. () with a population below 250,000

Check the category which describes your FATHER'S occupation most accurately:

- () 73. Blue collar
- () 74. Farm
- () 75. White collar

Check the category which describes your MOTHER'S
occupation most accurately:

() 76. Blue collar

() 77. Farm

() 78. White collar

APPENDIX C

DATA USED FOR COMPUTATION OF THE t-TESTS

Mean difference scores standard deviations, and variances as measures between the pretest and posttest-1 and between the pretest and posttest-2:

		Experimental Sample			Control Sample		
Time	Sample	(Pretest-Posttest)			(Pretest-Posttest)		
		\bar{X}_d	s	s ²	\bar{X}_d	s	s ²
Pre/Post-1	Total	-.14	.85	.73	.39	.91	.84
Pre/Post-1	Females	-.12	.79	.63	.31	.86	.73
Pre/Post-1	Males	-.24	1.13	1.27	.81	1.16	1.35
Pre/Post-2	Total	.001	.86	.75	.11	.99	.99
Pre/Post-2	Females	-.006	.84	.71	.02	.99	.99
Pre/Post-2	Males	.04	.98	.97	.54	1.00	1.01

*Symbols: \bar{X}_d =Mean Difference Score

s =Standard Deviation

s²=Variance

APPENDIX D

DESCRIPTORS FOR CURRICULUM SEQUENCE OF THE HUMAN RELATIONS TRAINING COMPONENT

I. Thursday, January 11, 1979

- A. Introductions and Miscellaneous Business
- B. Group Building Exercise
- C. History Giving - Sharing in Dyads
- D. Introductions Within Groups - Alter Ego
- E. Leaderful Group - Lecturette and Discussion

II. Friday, January 12, 1979

- A. Opener - Sharing Within Groups
- B. Johari Window - Lecturette
 - 1. Disclosure
 - 2. Feedback
- C. Listening Skills
 - 1. Paraphrasing
 - 2. Practice
 - 3. Evaluation
- D. Valuing
 - 1. "Johnny Lingo" Film: Discussion
 - 2. Interpersonal Goals

III. Monday, January 15, 1979

- A. Opener and Sharing of Interpersonal Goals
- B. Feelings
 - 1. Generate Feeling Words
 - 2. No Wrong Feeling
 - 3. Importance of Awareness and Owning Feelings

4. Distinction: Angry At/Angry About
5. Feedback Rules Which Include Feelings

C. Sharing...Valuing...Affirmation

1. Crossed Hands Tangle
2. Wheel of Life

D. Personal Evaluation (private reflections)

1. How I Am Like Others/Different From Others

IV. Tuesday, January 16, 1979

A. Opening Sequence...Sharing

1. Wheels of Life - Hang On Wall
2. Share From Like/Different Sheet
3. Large Group Process of Sharings

B. Group Consensus

1. Rules-Mindful of Leaderful Roles
2. "Marriage in New Atlantis" Exercise of Consensus
3. Process and Evaluation From Leaderful Group Sheet

C. Values Inventory

1. Write Reflections After Evaluation

V. Wednesday, January 17, 1979

A. Calculate Values Inventory - Group

B. Power Exercise

1. Universal-Personal: Inhumane Actions
2. Process Dyads
3. Process Group
4. Process Large Group

C. Large Group

1. Generate Discrimination Categories
2. "Bill Cosby On Prejudice" Film

VI. Thursday, January 18, 1979

A. Introduction Male/Female Issues

B. History Sharing of Sex Roles

1. Fantasy Trip
2. Sharing-Hubs in Group

C. Small and Large Group Process

VII. Friday, January 19, 1979

A. Opener

B. Generate Stereotypic Role Lists

1. Note Similarities for Males/Females
2. Share Feelings - Fishbowls of Men/of Women

C. Large Group Discussion: Angry At/Angry About

VIII. Monday, January 22, 1979

A. Freedom of Behaving Lecturette

1. Group Process

B. Personal Rights - Large Group

1. Albert Ellis List
2. Assertiveness for Males/Females

C. Separate Sex Exercise

1. Pride in Gender
 - a. Affirmation for Females
 - b. Touching for Males

IX. Tuesday, January 23, 1979

A. Opening Discussion in Groups

1. Reflections From Yesterday

B. "Mens Lives" Film

1. Process in Groups
2. Large Group Discussion

X. Wednesday, January 24, 1979

A. Personal Exploration: Sex Role Behavior

B. I'm Proud of Being Male/Female

C. Borrow Traits From Opposite Gender Lists

1. Discussion
2. Affirmations

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D. "He and She" Film

APPENDIX E

INDIVIDUAL SCORES

Experimental and Control Subject's t-scores on the Bem Sex Role Inventory for the Pretest, Posttest-1 and Posttest-2 accompanied by Subject's Difference Scores Between Posttest-1 and the Pretest and Between Posttest-2 and the Pretest.

Experimental Sample						
I.D.	Gender	t-scores on B.S.R.I.			Difference Scores	
		Pretest	Post-test-1	Post-test-2	Posttest-1 - Pretest	Posttest-2 - Pretest
02	M	0.25	0.97	0.76	-0.72	-0.51
03	M	-1.23	-2.17	1.58	-0.94	-0.35
04	M	-3.56	-5.59	5.20	-2.03	-1.64
06	M	-1.08	-0.86	0.35	0.22	0.73
08	M	-2.81	-1.71	1.49	1.10	1.32
11	M	-1.26	-0.34	0.57	0.92	0.69
12	F	-0.78	-0.21	0.10	0.57	0.68
14	F	-1.20	-1.08	-2.36	0.12	-1.16
15	F	2.43	1.01	0.76	1.42	1.67
16	F	0.20	0.30	0.43	-0.10	-0.23
17	F	0.36	2.10	0.75	-1.74	-0.39
19	F	-1.26	-1.64	-2.43	-0.38	-1.17
20	F	-0.46	-0.76	-1.05	-0.30	-0.59
22	F	1.53	1.70	2.97	-0.17	-1.44
23	F	-0.72	-0.14	0	0.58	0.72
24	F	0.79	0.98	0.88	-0.19	-0.09
25	F	3.38	3.45	3.90	-0.07	-0.52
26	F	-1.07	0	-1.17	1.07	0.10
27	F	1.31	0.80	0.22	0.51	1.09
28	F	3.75	2.35	2.86	1.40	0.89
29	F	2.73	4.79	2.33	-2.06	0.40
30	F	0.67	1.14	1.34	-0.47	-0.67
31	F	1.01	1.32	1.26	-0.31	-0.25
32	F	0.84	1.35	1.61	-0.51	-0.77

Experimental Sample

I.D.	Gender	t-scores on B.S.R.I.			Difference Scores	
		Pretest	Post-test-1	Post-test-2	Posttest-1 - Pretest	Posttest-2 - Pretest
33	F	0.38	0.40	0	-0.02	0.38
34	F	2.09	2.21	2.04	-0.12	0.05
36	F	-0.34	0.55	0	-0.21	0.34
37	F	-1.30	-1.10	-0.74	0.20	0.56
38	F	-0.58	-1.04	-1.64	-0.46	-1.06
39	F	0.43	1.48	0.66	-1.05	-0.23
40	F	-0.55	-0.73	-1.32	-0.18	-0.77
41	F	2.43	2.32	2.19	0.11	0.24
42	F	-0.20	0.22	0.31	-0.02	-0.11
43	F	1.40	0	-0.22	-1.40	1.18
44	F	-0.81	2.03	0.91	-1.22	-0.10
45	F	1.89	3.13	0.63	-1.24	1.26
46	F	0.49	1.36	1.58	-0.87	-1.09
47	F	2.65	2.74	0.59	-0.09	2.06
49	F	-1.16	-0.76	-1.37	0.40	-0.21
50	F	-1.27	-1.23	-2.03	0.04	-0.76

Control Sample

I.D.	Gender	t-scores on B.S.R.I.			Difference Scores	
		Pretest	Post-test-1	Post-test-2	Posttest-1 - Pretest	Posttest-2 - Pretest
101	M	0.76	1.10	0.25	0.34	0.85
103	M	-1.38	-3.93	-2.56	2.55	1.37
104	M	1.75	-1.88	-2.46	0.13	-0.58
108	M	-2.56	-3.43	-2.51	0.87	0.92
109	M	-2.78	-2.99	-3.66	0.21	-0.67
110	M	-1.16	-1.96	-0.61	0.80	1.35
113	F	4.10	4.48	4.63	0.38	-0.15
114	F	0.34	0.81	0.13	0.47	0.68
117	F	-0.75	-1.42	-0.95	0.67	0.47
118	F	0.75	1.14	0.47	0.39	0.67
119	F	0.80	1.76	2.04	0.96	-0.28
120	F	4.03	4.20	3.11	0.17	1.09
121	F	-2.45	-1.50	-3.04	-0.95	-1.54
122	F	0.71	1.44	1.34	0.73	0.10
123	F	0	-2.02	-0.59	2.02	1.43
124	F	0.58	0.86	1.49	0.28	-0.63
125	F	-0.76	-2.04	-1.23	1.28	0.81
126	F	2.38	2.68	0.85	0.30	1.83
127	F	4.56	4.17	5.01	-0.39	-0.84
129	F	1.07	0.39	2.02	-0.68	-1.63
130	F	4.66	3.89	3.06	-0.77	0.83
131	F	0.52	1.02	1.37	0.50	-0.35
132	F	-2.04	- .96	-2.64	-1.08	-1.68
133	F	1.62	2.41	1.35	0.79	1.06
134	F	-0.23	.20	0.43	-0.03	-0.23
137	F	-0.28	-0.30	-1.02	0.02	-0.72
138	F	1.99	1.85	0.43	-0.14	1.42
139	F	0.88	1.57	2.19	0.69	-0.62
141	F	0	-0.14	1.78	0.14	-1.64
142	F	2.83	5.18	5.94	2.35	-0.76
143	F	-0.27	1.04	-0.43	1.31	0.61
144	F	1.81	1.72	0.42	-0.09	1.30
145	F	3.00	2.67	3.10	-0.33	-0.43
146	F	-0.66	-0.26	0.46	-0.40	-0.20